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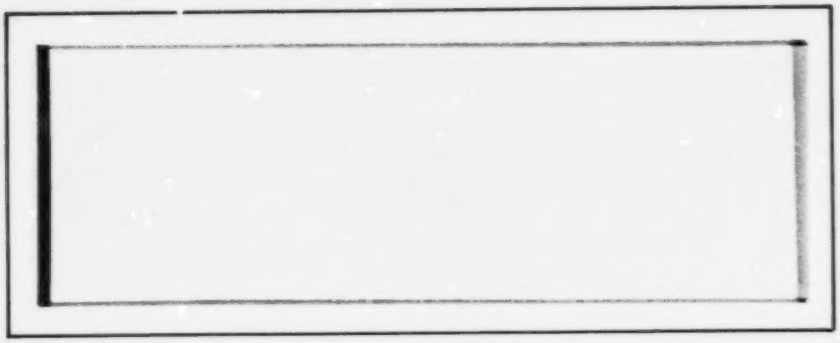

WORKING PAPER

Marketing and Economics Branch

Direction générale de la commercialisation et de l'économie

Working papers are (1) interim reports completed by the staff of the Marketing & Economics Branch, and (2) research reports completed under contract. The former reports have received limited review, and are circulated for discussion and comment. Views expressed in these papers are those of the author(s) and do not necessarily represent those of Agriculture Canada.

THE EGG PROCESSING INDUSTRY -- AN EXAMINATION OF CANADIAN EGG MARKETING AGENCY POLICIES TOWARD BREAKERS REGARDING PRICING AND PRODUCTION

(Working Paper 13/84)

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PREFACE

This report presents a description of the Canadian processed egg industry, its relationship with, and development under the Canadian Egg Marketing Agency (CEMA). The industry profile is followed by a selection of issues confronting the processed egg industry and CEMA with regard to producing and pricing. The analysis and evaluation of these policies and consequent recommendations were conducted by the Poultry Unit in the Commodity Markets Analysis Division, Marketing and Economics Branch of Agriculture Canada. The analysis was conducted and the report written by Dr. Paul K. Blakely, under the supervision of Donald B. Murray, both of the Marketing and Economics Branch of Agriculture Canada.

The principal objectives of the report were to write a comprehensive profile of the Canadian processed egg industry and to analyze and evaluate CEMA production and pricing policies toward that industry segment. The report addresses the issues of: whether the processed egg industry should be responsible for the role of maintaining table egg quality; the determination of an "appropriate" price for egg processors; the degree to which processed egg prices should be subsidized; CEMA's production commitment to supply the processed egg industry.

Data and information were obtained primarily through Agriculture Canada published data sources as well as from sources in the United States, and the U.K. Discussions with government and industry people were also extensively used in the preparation of this document.

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The Egg Processing Industry:

An Examination of Canadian Egg Marketing Agency Policies Toward Breakers Regarding Pricing and Production

I. Introduction

This report presents a description of the Canadian Processed Egg Industry, its relationship with, and development under the Canadian Egg Marketing Agency (CEMA). An industry profile is followed by a section of issues confronting CEMA and the processing industry with regard to production and pricing. In that section some of the implications regarding present policies will be explored. The next section will contain the broad outlines of a few alternative proposals with a view toward initiating discussion on improvements to present policies. The last section provides the summary and conclusions.

II. Background

II.A. The Role of the Processed Egg Industry

Egg processors break shell eggs to produce liquid, frozen and dried egg powder. In this capacity, Canadian egg processors during 1983 achieved a total sales value of $36.0 million. Perhaps more important than actual sales volume, however, is the fact that egg processors (breakers) provide a vital link in the smooth operation of the total egg industry. The processing sector serves, or has historically served, at least three functions:

1) The establishment of markets for egg product has expanded the demand for farm production of shell eggs.

2) Historically, purchases by the processed egg industry encouraged improved quality of table eggs by diverting undergrade eggs (grades B, C and cracks) away from the table market.

3) Perhaps most importantly, the processing industry has acted as a safety valve for excess production of table egg requirements by purchasing eggs surplus to that market (since 1975, grade A surplus is bought from CEMA). Because shell eggs are a perishable product, excess production cannot be stored for future table use in shell form. Any dumping of small quantities of surplus eggs onto the table egg market would result in large price swings because of the relative insensitivity of table egg demand to price changes. Thus, through surplus removal, egg processors help to stabilize table egg prices.

It can be shown that it is in the best interests of producers, consumers and the breaking industry that the CEMA price of eggs to breakers should be below the total cost of producing eggs. If the breaking industry can expand demand for shell eggs at that price, the first function listed above is fulfilled. If the breaking industry cannot survive at that price for shell eggs, then another set of issues arises: how can the breaking industry procure shell eggs at a price lower than that which is alleged to be the appropriate CEMA price to breakers; should the CEMA price to breakers be subsidized; if so, by whom; should a stable supply of eggs be available to breakers throughout the year; what is an appropriate commitment level of eggs to breakers? It is to these issues that this report is addressed.

II.B. A Description of Egg Processing[1]

Eggs can be processed into frozen, liquid and dried (powder) form. Each form of the product may be marketed as whole egg or as separated yolk and albumen. The breaking process is occasionally done by hand, but more generally by machine with trained personnel closely monitoring the new product to see that only clean graded eggs are processed. The liquid egg is generally mixed in stainless steel tanks

[1] Eggs and Egg Products, Publication 1498, Agriculture Canada, 1977.

to homogenize yolk and albumen, filtered to remove any pieces of shell or chalazae, then pasteurized and packaged. Whole egg, separated yolks and whites can all be prepared in this manner. Liquid egg is generally merchandized in 500 lb. refrigerated stainless steel tanks, or for large users, in liquid tankers. If the egg is sold in liquid form, it is placed in the self-refrigerated tanks at 0°C or slightly lower to be chilled before shipping. Generally a frosty crust is desirable to retard bacterial growth. If the liquid egg is to be frozen, this is usually done in a blast freezer at -23°C or lower. After freezing, the frozen egg may be held at -18°C. Most users of frozen eggs consider the quality of the product improves if it is frozen for about a month before using. Frozen egg is commercially packed in tin, plastic, or polyethylene-lined corrugated containers that can withstand refrigeration and thawing. But 38 lb. production plastic pails are becoming more popular because they are re-useable.

Liquid egg can be dried in two ways: spray-drying and pan-drying (used to a limited extent for egg whites only). In the former, the melange is pumped into the drying chamber under pressure as a mist. The mist hits the hot air stream (about 121°C) which instantly evaporates the moisture and carries the solids to the end of the drier where they are discharged. In pan-drying, large shallow pans are filled with egg albumen and stacked on racks in a heated chamber. Hot air is circulated by fan over the product, evaporating the moisture slowly and leaving a layer of crystals called "flakes". These flakes are either put through a mill to produce a fine powder or sold in flake form, depending on their ultimate use. It is important to appreciate that the yield in converting liquid to dried egg can have a significant economic impact in packaging and transportation.

It requires approximately: 4 kg of liquid whole egg to make 1 kg whole egg powder, 2.3 kg of liquid yolk to make 1 kg yolk powder, and 8.1 kg of liquid albumen to make 1 kg egg white (albumen) powder. Of the twelve active egg processing plants in Canada (Table 1) on January 1, 1984, only four had drying capacity.

TABLE 1. PROCESSED EGG STATIONS IN CANADA AS OF JANUARY 1, 1982

Province	Number of Stations	Stations with Drying Capacity
B.C.	1	1
Alberta	1	1
Manitoba	2	1
Ontario	7	1
Quebec	1	
Canada	12	4

Source: Agriculture Canada Field Personnel.

II.C. Uses of Egg Product

Processed egg is often further differentiated through the mixing of various additives such as sugar, salt, or agents to improve whipping quality or viscosity. The most common uses of egg product are presented in Table 2. Primary users of frozen and liquid egg product includes bakeries, restaurants and manufacturers of cookies, noodles and mayonnaise, among others. Dried egg is used in the preparation of cake and sweet dough mixes, ice cream powders, as well as in many of the food products mentioned for liquid and frozen egg.

TABLE 2. USERS AND USES OF EGG PRODUCTS

	Frozen			Liquid			Dried		
	Whole Egg	Yolk	Whites	Whole Egg	Yolk	Whites	Whole Egg	Yolk	Whites
Food Manufacture									
Bakeries	•	•	•	•	•	•	•	•	•
Restaurants	•	•	•	•	•	•			
Cookie Mfg.	•	•	•	•	•	•	•	•	•
Candy Mfg.			•			•			•
Baby foods	•	•		•	•		•	•	
Meringues			•			•			•
Frostings			•			•			•
Frozen Deserts	•	•	•	•	•	•			
Drinks	•	•	•	•	•	•			•
Dairy Products	•	•		•	•		•	•	
Camper Supplies							•		
Food Products									
Sweet Dough mix	•	•		•	•		•	•	
Dried Mixes							•	•	•
Institution Mixes	•	•	•	•	•	•	•	•	•
Macaroni		•			•			•	
Doughnuts		•			•			•	
Mayonnaise	•	•		•	•		•	•	
Noodles	•	•		•	•		•	•	
Salad Dressing		•			•			•	
Soups		•			•			•	
Meat Binder			•			•			•
Other									
Shampoo	•	•	•	•	•	•	•	•	•
Pet Foods	•	•		•	•		•	•	
Animal Food	•			•			•		
Pharmaceutical	•		•	•		•	•		
Leather Tanning			•			•			•
Adhesives			•			•			•
Lithographing			•			•			•

Source: Eggs and Egg Products.

II.D. Tariff Protection and Import Quotas

The tariff schedule following the Tokyo Round of trade negotiations in 1980 set out the following tariffs on eggs and egg products, still in effect as of 1983:

Canadian Tariff Item	Commodity	Effective Date	Unit	British Preferential Tariff	Most Favored Nation Tariff
1600-1[a,b]	Shell eggs	1980	dozen	2.0 cts	3.5 cts
1605-1[b]	frozen & liquid eggs	1980	lb.	5.0 cts	7.0 cts
1610-1[b]	dried eggs	1980	lb.	10%	20%

[a]Canada/Australia/New Zealand Trade Agreement, duty: December, January, February: Free
[b]Import permit required.

To import eggs and egg products to Canada requires both country and plant certification from Agriculture Canada to ensure inspection standards and regulations regarding grading, packing and marking conform with those in Canada. As of January 1, 1984, only 2 countries were certified to ship egg products to Canada: the United States and Holland. Only the U.S. is certified to ship shell eggs to Canada. Because of the United Kingdom's entry into the European Community the British Preferential Tariff schedule is being phased out. By January 1, 1982, the tariffs on eggs and egg products from the U.K. were equivalent to those appearing in the Most Favored Nation schedule. The tariff schedule for the U.K. and the U.S. on eggs and egg products thus became equivalent as of that date. Most of the egg imports to Canada originate from the U.S.

Both eggs and egg products appear on the federal government's Import Control List by virtue of the egg industry being under a national supply management program. As such, the import volumes of eggs and egg products are controlled by quota. Quotas are based on a percentage of the previous year's domestic production of shell eggs as reported by Statistics Canada, minus those used for hatching. The percentages for shell, frozen-liquid, and dried are .675, .415 and .615, respectively. For 1984, for example, estimates of import quotas can be computed based on preliminary egg production figures for 1983:

Total 1983 egg production	504,804,000 doz.
Less: eggs used for hatching	32,905,000 doz.
Domestic production used for consumption	471,899,000 doz.

Conversion factors are applied to shell egg production to determine the pound equivalent of frozen-liquid and dried imports. They are based on A large shell egg equivalent and equal 4/3 pounds per dozen for frozen-liquid and 1/3 pound per dozen for dried. Thus,

1983 Import quota for shell

471,899,000 x .00675 = 3,185,318 doz.

1983 Import quota for frozen-liquid

471,899,000 x .00415 = 1,958,381 doz.
1,958,381 x 4/3 = 2,611,174 lbs.

1983 Import quota for dried

471,899,000 x .00615 = 2,902,179 doz.
2,902,179 x 1/3 = 967,393 lbs.

TABLE 3. IMPORT QUOTAS, TOTAL IMPORTS AND DOMESTIC PRODUCTION OF EGGS AND EGG PRODUCTS, 1983

Category (1)	Import Quota[a] (2)	Total Imports[b] (3)	Domestic Production[c] (4)	(2) as a percent of (4)	(3) as a percent of (4)
			(000 of dozen)		
Shell eggs	3,185	4,449	454,701	0.70	0.98
Liquid/frozen	1,958	1,940	28,088	6.97	6.91
Dried	2,902	476	17,726	16.37	2.69

[a]Import quotas were based on 1982 Domestic Production minus eggs used for hatching, as reported by Statistics Canada.
[b]Imports of egg and egg products excluding duty draw back arrangements, (egg for re-export), based on import permits issued, including supplementals.
[c]Agriculture Canada Poultry Market Review.

An examination of Table 3 shows that import quota as a percent of domestic production, varies markedly by category. For shell eggs, import quota represents 0.675 percent of domestic production. But when the frozen-liquid and dried egg import quota is expressed as a proportion of domestic production of its own egg product category, the percentages are 6.7 and 19.5 respectively. Total imports[2] may exceed import quota.

[2]Total imports are the sum of "global" and supplementary imports. Global" imports refer to the imports determined to satisfy the requirements of section 11 of GATT. If a demonstrated need for further imports is indicated, supplementary imports beyond the negotiated global levels are permitted.

A representative year, for example, is 1981, when frozen-liquid total imports were 6.85 percent of total frozen-liquid production and dried egg global imports were 3.32 percent of total dried egg production. This implies that the proportion of egg product consumed in Canada originating from domestic production may vary significantly, depending on the relative prices of egg product in the U.S. and Canada. In a year when the U.S. egg market is depressed, for example, there is little doubt that the import quotas will be fully utilized because it is economically advantageous to do so. But when it is not economically advantageous to import, import quota will not be fully utilized as illustrated in the case of dried eggs, Table 3. Ultimately, the degree of import quota utilization depends on the relative price of egg product prevailing in the two countries. The import tariff on dried or frozen-liquid egg, however, is a fairly significant deterrent (see Table A, previous). Additionally, the import quota for dried egg is larger than utilization because a large import base was built up prior to 1977 when grade standards were imposed on dried egg product. Much of the low quality product that had been imported prior to grade standardization was, therefore, eliminated after 1977. The price of egg product in the U.S. must be considered as exogenous or external to Canada. But the price of egg product in Canada, and hence the degree of import utilization and Canadian egg processing industry growth is very much affected by CEMA's pricing policy toward breakers.

II.E. Trends in the Industry

II.E.1 Production of Processed Eggs

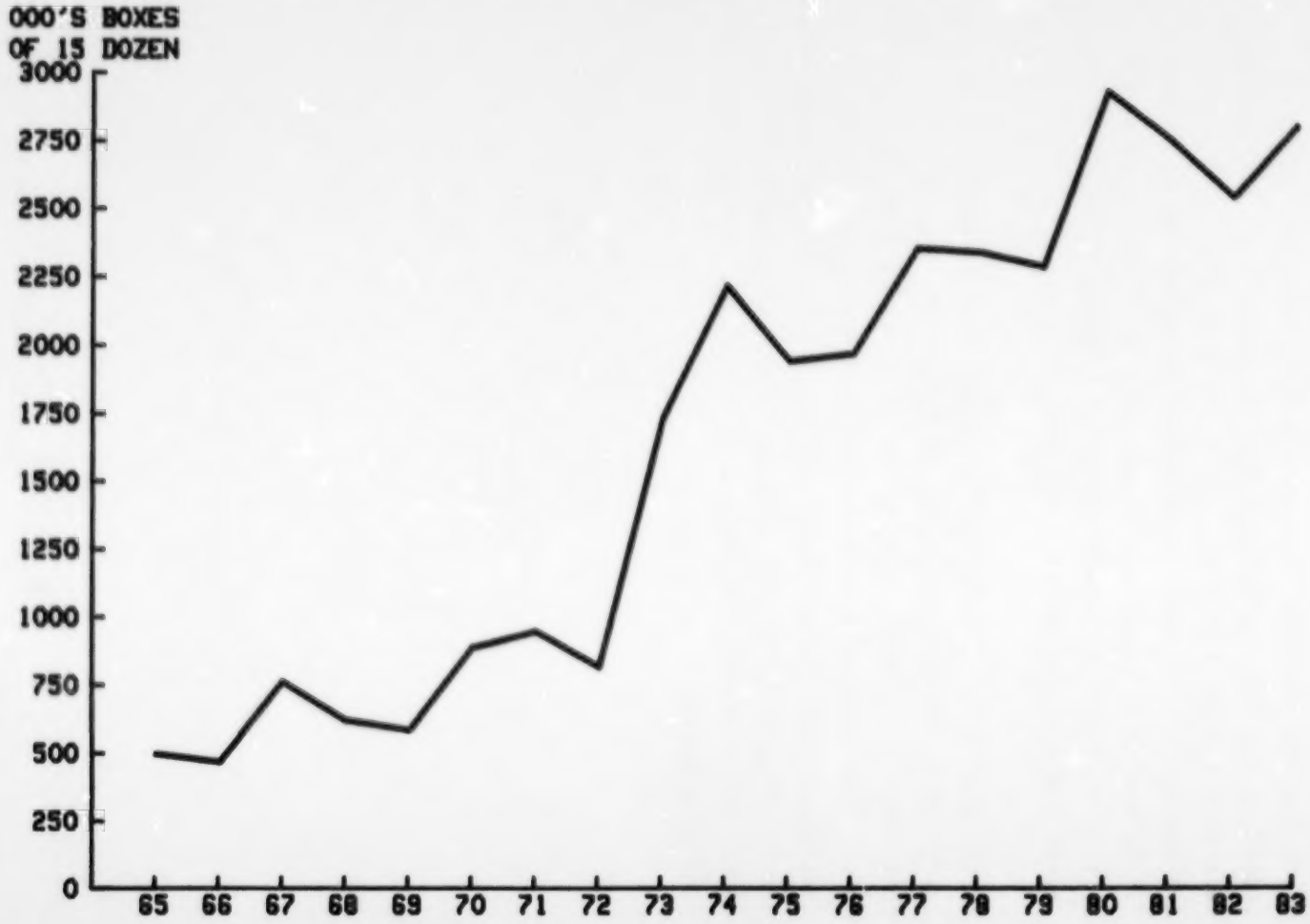
During the past 15 years when total egg production was on the decline, the egg processing industry expanded, probably helped in part by the proliferation of further processed food which uses egg as an ingredient. Table 4 shows the growth in the value of the processed egg industry. Some of the growth in value is attributable to general inflation and higher egg cost. But Figure 1 indicates that total break in physical units has also increased on an annual basis since 1966.

TABLE 4. VALUE OF CANADIAN PROCESSED EGG INDUSTRY (IN CURRENT DOLLARS)

	Liquid	Frozen	Dried	Total
			(000 dollars)	
1976	2,550.9	9,827.8	3,315.3	15,694.0
1977	2,994.0	11,431.5	5,804.9	20,231.2
1978	3,330.5	9,934.9	6,154.4	19,419.8
1979	3,983.3	10,884.8	7,167.5	22,035.6
1980	4,958.7	15,705.9	12,572.1	33,236.7
1981	5,854.2	19,281.4	13,191.2	38,326.8
1982	6,124.4	13,995.8	N/A	N/A
1983	6,169.2	15,852.9	N/A	N/A

Source: Prices: Toronto, using minimum of prices when reported as a range, Poultry Market Report and Confidential Poultry Market Report.
Production: Agriculture Canada Poultry Market Review.

FIGURE 1
TOTAL EGGS BROKEN IN CANADA, BY YEAR, 1965 TO 1983



SOURCE: AGRICULTURE CANADA POULTRY MARKET REVIEW

Although frozen egg accounts for the largest share of processed egg production both in terms of value and physical volume, dried egg production has been increasing consistently in recent years. Data separation between liquid and liquid-for-dried production has been available only since 1975. Liquid egg production has also shown fairly consistent growth since then. Growth in the liquid market, in particular, requires a stable supply of breaking stock and to some degree CEMA has provided this stability.

In the years prior to CEMA, breaker supplies were lowest in the fourth quarter when table egg demand was greatest. There is still a seasonal contraction in breaker supplies, but it is not as great as in pre-CEMA days. (See Table 5) Growth in the liquid market is expected to continue. Even relatively small users (of 5000 to 10,000 pounds-week) are switching from frozen to liquid because of convenience and lower cost. The quarterly production of processed egg for the years 1975 to 1980 is presented in Table 6.

TABLE 5. EGGS BROKEN FOR PROCESSING (IN 000 BOXES OF 15 DOZEN)

Year	Annual Break	Percent Broken in 4th Quarter
1966	935,414	16.6
1967	1,526,732	14.8
1968	1,242,860	13.7
1969	1,248,006	14.3
1970	1,798,060	20.6
1971	1,891,988	23.1
1972	1,600,660	20.8
1973	1,783,980	21.8
1974	2,262,080	26.5
1975	1,900,904	18.2
1976	2,002,115	20.3
1977	2,379,944	24.0
1978	2,334,631	14.9
1979	2,372,477	23.8
1980	2,915,616	22.6
1981	2,758,673	20.8
1982	2,548,956	21.9
1983	2,805,642	20.9

Source: Agriculture Canada Poultry Market Review.

TABLE 6. PRODUCTION OF PROCESSED EGG IN CANADA, 1975-1983, BY QUARTER (IN THOUSAND KGS. LIQUID EQUIVALENT)

	Liquid	Frozen	Dried	Total
1975				
I	512	2,601	1,393	4,506
II	587	2,479	1,283	4,349
III	502	3,131	940	4,573
IV	452	1,711	723	2,886
1976				
I	506	2,750	10,41	4,297
II	683	2,389	1,266	4,338
III	655	2,810	996	4,461
IV	612	1,734	943	3,289
1977				
I	743	2,589	1,326	4,658
II	792	3,058	1,461	5,311
III	759	2,688	1,390	4,837
IV	629	2,625	1,319	4,573
1978				
I	753	2,752	1,724	5,229
II	936	2,897	2,062	5,895
III	885	2,844	1,480	5,209
IV	726	1,232	827	2,785
1979				
I	803	2,168	1,261	4,232
II	771	2,381	1,441	4,593
II	939	2,400	2,261	5,600
IV	726	2,301	2,028	5,055
1980				
I	896	3,055	2,879	6,830
II	899	2,991	2,132	6,022
III	886	2,449	2,313	5,648
IV	825	2,591	1,729	5,145
1981				
I	869	3,099	2,489	6,457
II	963	2,875	2,711	6,549
III	862	3,224	1,785	5,871
IV	960	2,796	1,869	5,625

- continued -

TABLE 6. PRODUCTION OF PROCESSED EGG IN CANADA, 1975-1983, BY QUARTER (IN THOUSAND KGS. LIQUID EQUIVALENT) (concluded)

	Liquid	Frozen	Dried	Total
1982				
I	943	2,813	2,243	5,999
II	1,095	2,467	2,094	5,656
III	979	2,398	2,024	5,401
IV	981	2,644	834	4,459
1983				
I	955	2,499	2,670	6,124
II	1,097	2,216	2,639	5,952
III	1,118	2,598	2,650	6,366
IV	915	2,321	1,735	4,971

Source: Agriculture Canada Poultry Market Reviews.

II.E.2 Consumption of Processed Egg

The consumption of processed egg in North America has exhibited a pattern of increased growth during the past 15 years. It might even be argued that growth in the processed egg industry in Canada was facilitated by CEMA's development, because CEMA became the primary source of breaking stock. Years of relatively short domestic production relative to increases in table demand (1975, 1978, 1979), however, had an inhibiting effect on the processed egg industry growth. But the processing industry was likely to expand even without CEMA. In the U.S., processed egg consumption averaged 33.6 eggs per capita between 1971-1975 and 34.8 eggs between 1976-1980. (See Table 7) The increase is only 3.6 percent between the two periods but it should be recognized that the increase occurred when total egg consumption per capita in the U.S. was falling from 292.6 eggs (1971-1975) to 272.0 (1976-1980), a decrease of 7.0 percent.

TABLE 7. PER CAPITA CONSUMPTION OF EGGS (NUMBER IN EGG SHELL EGG EQUIVALENTS)

Year	Canada			United States			United Kingdom		
	Total	Processed		Total	Processed		Total	Processed	
	(1)	(2)	% (2) of (1)	(1)	(2)	% (2) of (1)	(1)	(2)	% (2) of (1)
1965	255.5	9.1	3.6						
1966	246.5	8.4	3.4						
1967	255.3	13.5	5.3						
1968	256.2	10.8	4.2						
1969	261.1	10.0	3.8						
1970	262.9	15.1	5.7	309.0	33.3	10.8			
1971	256.5	15.9	6.2	310.6	36.3	11.7			
1972	247.1	13.5	5.5	302.9	35.7	11.8			
1973	234.1	14.2	6.1	289.2	31.6	10.9			
1974	234.5	17.9	7.6	283.7	33.8	11.9			
1975	233.0	15.4	6.6	276.4	30.8	11.1			
1976	229.6	15.5	6.8	269.9	32.7	12.1	237	11	4.6
1977	222.8	18.3	8.2	267.6	36.2	13.5	236	12	5.1
1978	218.5	18.0	8.2	272.6	34.6	12.7	239	12	5.0
1979	227.0	17.4	7.7	277.7	35.6	12.8	238	11	4.6
1980	225.0	19.6	8.7	272.4	35.1	12.9	228	10	4.4
1981	220.8	22.2	8.6	264.5	32.4	12.3	N/A	N/A	N/A
1982	226	18.1	8.0	265.2	34.1	12.9	N/A	N/A	N/A
1983	222	19.2	8.6	261.0	35.3	13.5	N/A	N/A	N/A

Source: Canada - Poultry Market Review
United States - USDA Poultry and Egg Situation
United Kingdom - Agricultural Attache, U.K. Embassy

Processed egg consumption as a proportion of total egg consumption in the U.S. averaged 12.1 percent during 1971-1980, whereas the proportion in Canada exceeded 8.0 percent for only the first time in 1977. In 1980, it reached an all-time high of 8.7 percent and was in no small way a result of large surplus production to the table market in that year. The inception of CEMA did not prevent long term growth from continuing.

The following tables, 8 through 10, show a detailed breakdown of domestic disappearance of processed egg since 1975 in Canada. Increased consumption has occurred in all 3 categories of egg product: liquid, dried and frozen. The tables also show an increase in the amount of dried egg exports in 1980, which continued until 1981. Because much of the liquid egg was imported in tankers from the U.S. it suggests that Canadian processors are cost competitive in processing in a world market.

Final figures for 1982 show that the year was characterized by a plentiful supply of breaking stock but higher commitment prices on eggs to breakers and a recessionary economy. Perhaps primarily due to the latter, processed egg production was at least 5 percent below that of a year ago.

TABLE 8. DOMESTIC DISAPPEARANCE OF LIQUID EGG - CANADA

	Whole	Yolk	Albumen	Total
		- thousand pounds -		
1975				
Domestic production	4,140	196	189	4,525
Plus Imports				
Minus Imports to Dryer	-	-	28	28
Minus Exports				
Disappearance	4,140	196	161	4,497
1976				
Domestic production	4,678	513	367	5,558
Plus Imports				
Minus Imports to Dryer	-	-	367	367
Minus Exports				
Disappearance	4,678	513	0	5,558
1977				
Domestic production	5,563	614	137	6,314
Plus Imports	60	-	2,194	2,254
Minus Imports to Dryer	81	-	2,121	2,202
Minus Exports	-	-	-	-
Disappearance	5,542	614	210	6,366
1978				
Domestic production	6,616	538	120	7,274
Plus Imports	-	39	606	645
Minus Imports to Dryer	0	-	475	475
Minus Exports	-	-	-	-
Disappearance	6,616	577	251	7,444
1979				
Domestic Production	6,322	541	279	7,142
Plus Imports	333	1,859	1,840	4,032
Minus Imports to Dryer	-	300	1,918	2,218
Minus Exports	-	-	-	-
Disappearance	6,655	2,100	201	8,956
1980				
Domestic Production	6,760	632	336	7,728
Plus Imports	-	362	3,978	4,340
Minus Imports to Dryer	-	51	3,841	3,892
Minus Exports	-	194	-	194
Disappearance	6,760	749	473	7,982

- continued -

TABLE 8. DOMESTIC DISAPPEARANCE OF LIQUID EGG - CANADA (Concluded)

	Whole	Yolk	Albumen	Total
		- thousand pounds -		
1981				
Domestic Production	7,840	569	7	8,416
Plus Imports	757	1,937	1,626	4,320
Minus Imports to Dryer	414	1,836	1,538	3,788
Minus Exports	-	52	-	52
Disappearance	8,183	618	95	8,896
1982				
Domestic Production	7,590	1,175	46	8,811
Plus Imports	348	549	1,680	2,577
Minus Imports to Dryer	342	461	1,640	2,443
Minus Exports	7,596	1,263	86	8,945
Disappearance				
1983				
Domestic Production	7,190	1,261	557	9,008
Plus Imports	-	234	4,211	4,445
Minus Imports to Dryer	-	-	-	-
Minus Exports	-	-	-	-
Disappearance	7,190	1,495	4,768	13,453

Source: Agriculture Canada unpublished data.
Table 22 P.M.R.
1975 and 1976 data incomplete.

TABLE 9. DOMESTIC DISAPPEARANCE OF DRIED EGG - CANADA

	Whole	Yolk	Albumen	Total
		- thousand pounds -		
1975				
Domestic production	1,664	567	406	2,638
Plus Imports				
Minus Exports				
Disappearance				
1976				
Domestic production	550	617	864	2,030
Plus Imports				
Minus Exports				
Disappearance				
1977				
Domestic production	876	860	1,085	2,821
Plus Imports	545	153	50	748
Minus Exports	238	-	343	581
Disappearance	1,183	1,013	792	2,988
1978				
Domestic production	1,417	968	830	3,215
Plus Imports	45	190	10	245
Plus (opening minus closing) storage stocks	345	10	179	534
Minus Exports	195	95	-24	266
Disappearance	1,612	1,073	1,043	3,728
1979				
Domestic Production	1,340	968	830	3,215
Plus Imports	356	367	-	723
Minus Exports	142	155	299	596
Plus (opening minus closing) storage stocks	-107	4	14	-89
Disappearance	1,447	1,110	1,708	3,265
1980				
Domestic Production	1,642	1,479	1,869	4,990
Plus Imports	85	122	-	207
Minus Exports	146	215	1,070	1,431
Plus (opening minus closing) storage stocks	-96	-200	-145	-441
Disappearance	1,485	1,186	654	3,325

- continued -

TABLE 9. DOMESTIC DISAPPEARANCE OF DRIED EGG - CANADA (Concluded)

	Whole	Yolk	Albumen	Total
		- thousand pounds -		
1981				
Domestic Production	1,280	2,226	1,376	4,882
Plus Imports	11	-	-	11
Minus Exports	-	899	556	1,455
Plus (opening minus closing) storage stocks	+226	241	183	650
Disappearance	1,517	1,568	1,003	4,088
1982				
Domestic Production	1,572	1,341	1,201	4,144
Plus Imports	231	22	11	265
Minus Exports	88	216	454	758
Plus (opening minus closing) storage stocks	-42	-44	55	-31
Disappearance	1,673	1,103	813	3,590
1983				
Domestic Production	1,586	1,855	1,928	5,369
Plus Imports	309	-	18	326
Minus Exports	240	461	1,305	2,006
Plus (opening minus closing storage stocks	-79	-2	214	133
Disappearance	1,576	1,392	855	3,822

Note: 1975 and 1976 data incomplete. Table 22 P.M.R.

TABLE 10. DOMESTIC DISAPPEARANCE OF FROZEN EGG - CANADA

	Whole	Yolk	Albumen	Total
		- thousand pounds -		
1975				
Domestic production	14,732	3,508	3,636	21,876
Plus Imports	-	-	-	-
Minus Exports	-	-	-	-
Plus (opening-closing) storage stocks	937	377	-269	1,045
Minus Frozen to Dryer	2,443	1	332	2,776
Disappearance	13,226	3,884	3,035	20,145
1976				
Domestic production	14,189	4,143	3,014	21,347
Plus Imports				
Minus Exports	-	-	-	0
Plus (opening-closing) storage stocks	996	-431	1,185	1,750
Minus Frozen to Dryer	70	4	1,058	1,132
Disappearance	15,115	3,708	3,141	21,964
1977				
Domestic production	16,804	4,266	3,091	24,161
Plus Imports	420	40	24	484
Minus Exports	-	34	196	230
Plus (opening-closing) storage stocks	-1,789	-358	-65	-2,212
Minus Frozen to Dryer	90	30	211	331
Disappearance	15,345	3,884	2,643	21,872
1978				
Domestic production	14,018	3,759	3,665	21,442
Plus Imports	-	-	25	25
Minus Exports	-	-	287	287
Plus (opening-closing) storage stocks	1,315	1,008	5	2,328
Minus Frozen to Dryer	15	1	700	716
Disappearance	15,318	4,766	2,708	22,792
1979				
Domestic Production	14,351	3,462	2,579	20,392
Plus Imports	-	258	-	258
Minus Exports	-	-	-	-
Plus (opening-closing) storage stocks	1,296	-454	144	986
Minus Frozen to Dryer	82	-	1,225	1,307
Disappearance	15,565	3,266	1,498	20,329

- continued -

TABLE 10. DOMESTIC DISAPPEARANCE OF FROZEN EGG - CANADA (Concluded)

	Whole	Yolk	Albumen	Total
		- thousand pounds -		
1980				
Domestic Production	16,543	5,241	2,659	24,443
Plus Imports	-	-	39	39
Minus Exports	-	-	-	-
Plus (opening-closing) storage stocks	-1,067	54	-100	-1,113
Minus Frozen to Dryer	198	-	31	229
Disappearance	15,278	5,295	2,567	23,140
1981				
Domestic Production	17,258	5,092	4,093	26,443
Plus Imports	-	-	-	-
Minus Exports	-	-	755	755
Plus (opening-closing) storage stocks	1,774	244	4	2,022
Minus Frozen to Dryer	44	3	213	260
Disappearance	18,988	5,333	3,129	27,450
1982				
Domestic Production	14,275	4,714	3,766	22,755
Plus Imports	-	-	-	-
Minus Exports	-	-	463	463
Plus (Opening-closing) storage stocks	-514	712	-421	-223
Minus Frozen to Dryer	-	-	112	112
Disappearance	13,761	5,426	2,770	21,957
1983				
Domestic Production	12,655	4,870	3,714	21,239
Plus Imports	-	60	-	60
Minus Exports	-	-	-82	-82
Plus (Opening-closing) storage stocks	1,784	66	849	2,699
Minus Frozen to Dryer	-	-	-	-
Disappearance	14,439	4,996	4,481	23,916

Note: 1975 and 1976 data incomplete. Table 22 P.M.R.

II.E.3 Prices of Egg Product: Canada vs. U.S.

The following tables, 11 through 14, present a Canadian-U.S. price comparison on dried, frozen and liquid egg for the years 1976 to 1981. After 1981, some price series became confidential because of reduced reporting units. All prices are expressed in Canadian funds. U.S. prices do not include the tariffs presented in an earlier section. Recalling that the tariff on frozen and liquid egg product is 7 cents/lb., it appears that during recent years, Canadian processors have been competitive occasionally on frozen yolk and albumen, and at times on dried albumen. On most dried product except albumen, however, the U.S. has generally been priced below that in Canada even after tariff is added (except in the fourth quarter). In fact, when import quota was initially distributed based on historical record, 60 percent of the shell egg equivalent of egg product was allocated as dried product. (Contributing in large part to the high base quota for dried product, however, was the absence of product quality standards until mid-1977, which encouraged low-cost, low quality imports.)

TABLE 11. PRICE OF PROCESSED EGG PRODUCT (WHOLESALE) CANADIAN $/KG DRIED

	Toronto			New York		
	Whole	Yolk	Albumen	Whole	Yolk	Albumen
1976						
January	2.54	3.75	3.75	3.48	3.70	3.79
February	2.54	3.75	3.75	3.48	3.66	3.70
March	2.43	3.75	3.86	3.46	3.66	3.64
April	2.43	3.64	3.86	3.40	3.48	3.51
May	2.54	3.64	3.75	3.55	3.66	3.68
June	2.65	3.75	3.75	3.66	3.77	3.86
July	2.65	3.86	3.86	N/A	N/A	4.06
August	2.65	3.86	3.86	4.50	4.63	4.72
September	2.65	3.86	3.97	5.09	5.16	5.60
October	2.76	4.08	4.41	4.87	5.09	5.95
November	2.76	4.30	4.63	5.00	5.07	6.31
December	2.76	4.30	5.07	4.81	4.82	6.15
1977						
January	2.76	4.30	5.51	4.54	4.57	5.93
February	2.76	3.08	5.95	4.50	4.45	5.86
March	2.98	4.30	6.06	N/A	4.17	5.91
April	2.98	3.97	5.73	3.84	3.70	5.80
May	2.98	3.97	5.62	3.81	3.70	5.71
June	3.09	3.86	5.73	3.77	3.73	5.62
July	3.31	3.86	5.73	3.79	3.70	5.56
August	3.53	3.86	5.73	3.61	3.59	5.31
September	3.75	3.97	5.84	3.59	3.59	5.22
October	3.75	3.75	5.73	3.53	3.53	5.05
November	3.75	3.75	5.62	3.75	3.73	4.98
December	3.53	3.64	5.51	3.53	3.51	4.82
1978						
January	3.31	3.64	5.51	3.33	3.22	4.57
February	3.53	3.53	5.51	3.42	3.40	4.74
March	3.31	3.75	5.40	3.61	3.61	5.20
April	3.31	3.75	5.29	3.84	3.73	5.97
May	3.75	3.75	5.51	3.84	3.64	5.93
June	3.75	3.97	5.51	3.68	3.51	5.80
July	3.75	3.97	5.51	3.79	3.59	5.86
August	3.75	3.86	5.51	4.03	3.75	6.22
September	3.64	3.97	5.51	4.23	3.99	6.61
October	3.86	4.08	5.73	4.21	3.99	6.77
November	3.97	4.08	5.95	4.50	4.17	7.03
December	3.97	4.08	6.17	4.85	4.37	7.61

TABLE 12. PRICE OF PROCESSED EGG PRODUCT (WHOLESALE) CANADIAN $/KG DRIED

	Toronto			New York		
	Whole	Yolk	Albumen	Whole	Yolk	Albumen
1979						
January	3.97	4.03	6.02	4.48	3.97	7.25
February	3.97	3.97	5.95	4.41	3.92	7.08
March	3.97	3.99	5.84	4.34	3.84	6.99
April	4.03	4.10	6.04	4.43	4.01	7.05
May	4.28	4.39	6.15	4.54	4.01	7.14
June	4.30	4.30	6.00	4.57	4.01	7.10
July	4.30	4.30	5.95	4.48	4.01	7.01
August				4.48	4.01	7.01
September				4.45	4.21	7.01
October				4.50	4.34	7.10
November				4.63	4.50	6.94
December				4.57	4.52	6.55
1980						
January	5.05	5.20	7.32	4.41	4.45	6.28
February	5.00	5.16	7.19	4.19	4.25	5.82
March	4.85	4.76	7.05	4.23	4.30	5.64
April	4.63	4.65	6.77	4.12	4.17	5.36
May	4.67	4.63	6.61	3.92	3.95	4.94
June	4.50	4.63	6.50	3.88	3.92	4.74
July	4.41	4.63	6.17	4.03	4.12	4.94
August	4.63	4.76	6.28	6.34	4.72	5.69
September	4.85	4.96	6.55	5.00	5.24	6.08
October	4.92	5.00	6.39	5.27	5.91	6.06
November	5.07	5.29	6.61	5.82	6.44	6.28
December	5.29		6.75	5.72	6.44	6.50
1981						
January	5.40	5.84	6.83	5.51	5.84	6.19
February	5.51	5.73	6.83	5.09	5.36	5.75
March	5.51	5.73	6.94	5.05	5.29	5.47
April	5.38	5.62	6.81	4.72	4.94	5.31
May	5.29	5.51	6.57	4.67	4.94	5.20
June	5.29	5.51	6.39	4.81		5.25
July	5.31	5.56	6.59	4.82		5.18
August	5.51	5.62	6.57	4.85	5.36	5.09
September	5.73	5.95	6.61		5.62	5.25
October	5.73	5.95	6.61	5.31	5.95	5.40
November	NR	NR	NR	5.31	5.56	5.97
December	5.73	6.17	6.61	4.93	5.18	5.60

- continued -

TABLE 12. PRICE OF PROCESSED EGG PRODUCT (WHOLESALE) CANADIAN $/KG DRIED (concluded)

	Toronto			New York		
	Whole	Yolk	Albumen	Whole	Yolk	Albumen
1982						
January	N/A	N/A	N/A	4.87	5.18	5.07
February	N/A	N/A	N/A	5.09	5.40	5.14
March	N/A	N/A	N/A	5.36	5.60	5.40
April	N/A	N/A	N/A	4.83	5.05	5.07
May	N/A	N/A	N/A	4.63	5.05	5.07
June	N/A	N/A	N/A	4.76	5.20	4.76
July	N/A	N/A	N/A	4.76	5.58	4.45
August	N/A	N/A	N/A	4.52	5.40	4.03
September	N/A	N/A	N/A	4.67	5.69	4.08
October	N/A	N/A	N/A	4.81	5.89	4.03
November	N/A	N/A	N/A	4.50	5.42	3.79
December	N/A	N/A	N/A	4.21	5.07	3.55
1983						
January	N/A	N/A	N/A	4.08	4.89	3.31
February	N/A	N/A	N/A	4.19	5.09	3.48
March	N/A	N/A	N/A	4.30	5.11	3.62
April	N/A	N/A	N/A	4.30	5.11	3.88
May	N/A	N/A	N/A	4.87	5.60	4.54
June	N/A	N/A	N/A	5.14	5.75	4.96
July	N/A	N/A	N/A	5.05	5.80	5.07
August	N/A	N/A	N/A	5.22	5.19	5.31
September	N/A	N/A	N/A	5.82	6.77	5.82
October	N/A	N/A	N/A	6.57	7.28	6.48
November	N/A	N/A	N/A	6.90	7.47	8.13
December	N/A	N/A	N/A	7.12	7.69	8.18

NOTE: All prices in Canadian dollars. Exchange rate - Bank of Canada. Prices used are minimum when reported as a range.

Source: Canada - Toronto prices, Agriculture Canada unpublished data. USA - New York Prices, U.S.D.A. Poultry and Egg Situation and Outlook.

TABLE 13. PRICE OF PROCESSED EGG PRODUCT (WHOLESALE) CANADIAN ¢/KG
FROZEN

	Toronto			New York		
	Whole	Yolk	Albumen	Whole	Yolk	Albumen
1976						
January	88.2	176.4	33.1	91.0	148.6	49.2
February	90.4	180.8	35.3	94.4	149.5	49.8
March	90.4	180.8	35.3	93.9	148.8	49.8
April	90.4	202.8	35.3	89.3	144.4	48.3
May	88.2	176.4	36.4	92.2	145.7	52.7
June	88.2	176.4	35.3	93.9	148.6	56.4
July	94.8	176.4	39.7	96.6	152.8	59.5
August	94.8	176.4	39.7	105.6	167.9	63.5
September	92.6	176.4	39.7	115.7	183.6	70.1
October	94.8	178.6	44.1	114.9	183.9	71.4
November	94.8	178.6	44.1	119.0	185.6	75.6
December	97.0	179.7	50.7	115.7	180.8	74.9
1977						
January	97.0	180.8	48.5	112.4	176.4	71.9
February	97.0	180.8	50.7	108.7	172.4	72.5
March	97.0	180.8	50.7	105.4	166.2	71.9
April	97.0	178.6	52.9	97.2	152.2	70.5
May	97.0	178.6	52.9	95.2	148.4	70.9
June	94.8	176.4	52.9	91.5	145.9	69.0
July	92.6	176.4	52.9	90.2	147.7	67.2
August	94.8	176.4	55.1	86.9	146.2	63.5
September	97.0	174.2	55.1	87.5	148.8	62.6
October	94.8	172.0	55.1	87.5	149.7	61.5
November	92.6	167.5	57.3	92.8	154.8	64.5
December	92.6	167.5	57.3	86.2	146.2	61.7
1978						
January	92.6	167.5	61.7	80.2	133.8	59.3
February	88.2	167.5	61.7	84.7	136.2	63.5
March	88.2	167.5	61.7	89.9	137.3	67.7
April	88.2	167.5	61.7	96.1	142.6	72.5
May	92.6	172.0	61.7	95.0	139.8	73.9
June	94.8	172.0	61.7	91.5	135.4	68.6
July	94.8	172.0	57.3	94.8	137.6	70.9
August	94.8	172.0	57.3	101.0	143.9	75.8
September	97.0	174.2	57.3	105.6	154.5	81.3
October	99.2	172.0	59.5	106.9	156.7	82.9
November	99.2	172.0	59.5	120.2	169.9	92.2
December	105.8	176.4	63.9	126.9	178.6	97.7

TABLE 14. PRICE OF PROCESSED EGG PRODUCT (WHOLESALE) CANADIAN ¢/KG FROZEN

	Toronto			New York		
	Whole	Yolk	Albumen	Whole	Yolk	Albumen
1979						
January	106		63.5	113.5	162.7	91.9
February	105.8		65.0	108.9	159.6	89.5
March	108.9		62.2	111.1	162.5	89.1
April	110.7		62.2	107.6	160.7	87.5
May	112.4		65.0	113.5	164.9	90.4
June	114.6		65.5	111.9	166.4	88.4
July	115.7		63.5	108.5	166.9	85.8
August	122.1		81.1	106.3	168.2	85.8
September	127.4		85.5	111.9	174.4	85.1
October	128.5		85.9	110.9	178.6	83.3
November	132.3		82.5	119.5	184.7	78.9
December	131.1		84.9	117.7	184.1	73.2
1980						
January	132.3		82.5	110.2	179.2	68.8
February	133.4		81.6	105.6	172.4	65.7
March	130.0		82.2	109.3	177.2	66.7
April	127.8		76.7	103.8	175.0	66.1
May	125.7		74.9	101.9	173.0	63.9
June	125.7		72.8	100.3	175.9	62.2
July	125.7		66.1	103.6	180.7	62.6
August	126.1		66.1	118.6	207.9	68.8
September	130.0		72.8	125.2	233.9	73.4
October	130.0		67.5	129.4	246.0	71.4
November	134.5		92.6	143.5	259.5	72.5
December	136.7		95.5	140.2	261.9	78.9
1981						
January	142.4		98.8	121.3	243.6	72.5
February	144.1		97.0	117.7	231.9	69.4
March	143.3		97.0	119.5	221.6	69.4
April	141.1		93.7	112.4	215.6	68.8
May	144.0		93.7	111.3	213.6	70.3
June	145.5		95.9	117.1	222.7	69.7
July	151.2		95.7	114.2	225.5	63.3
August	153.7		97.0	115.1	227.5	64.2
September	154.3		99.2	124.3	235.2	67.0
October	154.3		100.1	134.5	247.8	68.8
November	154.3		101.4	138.4	248.5	68.8
December	154.3		93.3	122.6	237.9	63.5

- continued -

TABLE 14. PRICE OF PROCESSED EGG PRODUCT (WHOLESALE) CANADIAN ¢/KG FROZEN (concluded)

	Toronto			New York		
	Whole	Yolk	Albumen	Whole	Yolk	Albumen
1982						
January	147.9	231.5	94.8	117.7	210.9	63.7
February	148.5	245.2	92.1	125.2	217.4	67.5
March	155.9	260.2	95.4	133.2	222.2	70.3
April	149.1	256.9	92.3	118.2	201.7	65.3
May	140.6	247.1	80.4	114.9	195.3	57.3
June	139.3	243.5	78.6	115.5	216.3	52.0
July	134.5	242.5	79.4	112.9	216.1	49.4
August	133.4	253.5	79.4	108.7	210.9	45.6
September	139.2	249.4	81.9	117.9	218.0	49.6
October	149.0	266.1	88.4	121.0	223.3	52.7
November	151.6	270.1	83.8	110.0	209.0	48.3
December	153.3	270.1	84.9	107.8	197.3	44.5
1983						
January	132.9	259.7	67.8	105.8	192.2	43.4
February	144.7	255.8	69.5	110.2	200.2	48.7
March	142.2	255.7	68.4	110.9	200.0	51.4
April	137.1	260.2	62.7	111.3	201.1	48.9
May	136.7	252.6	64.8	132.7	227.5	56.9
June	144.3	275.3	66.2	135.8	225.5	59.7
July	140.2	250.2	56.0	125.0	225.5	57.1
August	146.1	270.7	58.1	130.5	233.9	59.7
September	147.7	281.1	61.7	143.9	250.0	65.3
October	178.6	327.6	66.2	160.3	277.1	70.5
November	187.4	353.1	67.5	174.4	289.0	70.9
December	208.1	376.3	81.8	189.6	297.0	73.4

Notes: All prices in Canadian dollars, exchange rate - Bank of Canada
Prices used are minimum when reported as a range.

Source: Canada- Toronto Prices, Agriculture Canada unpublished data
USA - New York, U.S.D.A. Poultry and Egg Situation and Outlook.

II.F Sources of Breaking Eggs

Prior to CEMA's formation in 1973, the egg processing industry, obtained breaking stock primarily from undergrades (Grades B and C and cracks). The undergrades were supplemented by marginal grade A stock which could be obtained when the table egg price softened on a seasonal and cyclical basis. It was not uncommon for breaking plants to shut down temporarily until a surplus of table stock developed which depressed the price of Grade A eggs and allowed processors to enter that market.

Before import controls on shell eggs, some Canadian breakers would augment the domestic supply of undergrade eggs by importing grade B and C eggs for breaking. On occasion these eggs would come from countries other than the U.S., such as Great Britain or Israel.

In pre-CEMA days there were more undergrades available than in recent years. Table 15 shows the percent distribution of egg marketings by grade from 1966 to 1981. The 5 year average from 1966 to 1970 shows that the percentage of undergrades through registered stations was 10.2. By 1980 that percentage had fallen to 5.5. Over the same period, the egg processing industry had grown. Between 1966 and 1970, eggs broken as a proportion of total eggs graded averaged 7.5 percent as illustrated in Table 16. By 1980, the egg processing industry had expanded such that eggs broken as a proportion of egg gradings was 11.1 percent, though the percentage dropped slightly in the following 3 years. The absolute growth in total break however was even greater because although total egg production was falling, the percent of total egg production passing through registered stations has increased over time. Therefore, the egg processing industry has increased secularly while the percent of undergrades, formerly the primary source of breaking stock, has decreased.

TABLE 15. EGG RECEIPTS AT REGISTERED STATIONS, PERCENT DISTRIBUTION BY GRADE, 1966-1981.

Year	Grade A	Grade B	Grade C
1966-1970	89.8	4.3	5.8
1971	89.3	3.8	6.9
1972	90.3	3.4	6.2
1973	91.7	3.1	5.2
1974	92.1	2.8	5.0
1975	92.6	2.5	4.9
1976	93.1	2.1	4.7
1977	93.9	2.0	4.1
1978	94.1	1.9	4.0
1979	94.5	1.6	3.9
1980	94.5	1.6	3.9
1981	94.8	1.5	3.7
1982	95.2	1.3	3.5
1983	95.4	1.2	3.4

Source: Agriculture Canada Poultry Market Review.

TABLE 16. EGGS BROKEN AS A PERCENTAGE OF EGGS GRADED

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Annual
1966-1970	7.2	9.4	8.5	4.9	7.5
1969	5.0	8.2	8.4	3.8	6.4
1970	7.9	9.6	10.5	7.0	8.7
1971	9.3	9.1	9.0	8.3	8.9
1972	8.5	7.9	8.1	6.5	7.8
1973	8.6	8.7	8.0	7.1	8.1
1974	8.8	10.8	9.4	11.2	10.0
1975	9.5	9.4	9.7	6.4	8.8
1976	9.1	9.3	10.0	7.3	8.9
1977	9.6	10.6	10.2	9.5	10.0
1978	10.3	11.3	10.8	6.1	9.7
1979	8.5	9.1	10.8	9.0	9.4
1980	12.5	11.6	10.3	9.8	11.1
1981	10.9	11.4	10.0	8.5	10.2
1982	10.0	9.4	10.0	8.2	9.4
1983	10.8	10.3	10.8	8.3	10.0

Source: Agriculture Canada Poultry Market Review.

Through time, CEMA became firmly established as a seller of surplus[4] table eggs to the processing industry.

Table 17 shows how the brea ing industry has increased its reliance on CEMA for breaking stock over the years. The amount of grade A stock going to breakers in 1969 and the early 1970's was about 25 percent, the rest were undergrades or an ungraded nest-run category which was required to be shipped directly to processing. Most of the grade A stock in pre-CEMA days were marginal grade A eggs, sold at distress prices. When CEMA started removing surplus in 1973, Grade A eggs were sold to the breakers. CEMA did not start staining the Grade A to Grade C (to prevent re-emergence on the table market) until mid-1975, and there is some confusion reflected in the published statistics from 1973 to 1977.

Much of the CEMA surplus removal of Grade A, particularly in the scandal year (1974) was reported as B and C. By the mid-1970's breaking plants were supposed to report CEMA surplus sold to breakers as their original grade and size (all eggs would be A-grade since CEMA buys only A) but some plants continued to report those eggs as C. This continued into 1976 and 1977, when CEMA sales to breakers accounted for 74.5 and 78.8 percent of the total break in those years, but A's broken as a proportion of total break were reported as only 30.5 and 38.1 percent. In recent years, the statistics have become better as CEMA sales closely correlate with the proportion of A's broken. This is to be expected as CEMA is the only economically viable source of grade A's which are broken, all others would go to the higher priced table market. However, there continues to be some variation between CEMA sales to breakers and total A's broken, possibly due to processors purchasing eggs in one year and breaking them the following year.

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[4]The term "surplus" eggs as applied to CEMA's buy back program is often misunderstood. Such eggs are in excess of table egg requirements but in large part were planned production to supply the breaking industry when original production allocations were made.

TABLE 17. EGGS GRADED, BROKEN IN BOXES OF 15 DOZEN***

Year	B's Graded	C's Graded	B's Broken	C's Broken	B's Broken x 100 ÷ Total Break	C'S Broken x 100 ÷ Total Break	Unclass Broken x 100 ÷ Total Break	A's Broken x 100 ÷ Total Break	CEMA Sales to Breakers ÷ Total Break
1969	781,000	1,047,600	367,200	499,200	31.3	42.6*	-	26.1	
1970	891,600	1,271,200*	491,200	726,800*	27.5	40.8*	-	31.7	
1971	809,000	1,482,600*	492,400	990,600*	25.9	52.1*	-	22.0	
1972	727,512	1,315,204*	398,082	782,966*	24.3	47.7*	-	27.9	
1973	670,906	1,109,140*	312,330	489,318*	17.9	28.1*	-	53.9	
1974	625,362	1,113,242*	639,214	649,500*	28.8	30.0*	-	41.2	
1975	561,019	1,083,115	561,206	740,346	28.8	38.1	5.7	27.4	
1976	473,678	1,041,255	331,373	918,629	16.8	46.5	6.2	30.5	74.5
1977	469,361	980,120	260,217	1,169,231	11.0	49.6	1.3	38.1	78.8
1978	450,281	964,010	37,126	575,911	1.6	24.6	0.7	73.1	65.4
1979	401,160	954,438	17,256	624,925	0.8	27.3	1.0	70.9	75.3
1980	413,704	1,031,949	12,699	573,235	0.4	19.5	0.4	79.7	73.9
1981	398,944	1,003,775	4,263	515,626	0.2	18.7	0.2	81.0	64.9**
1982	360,609	958,762	704	454,107	0.3	17.8	1.3	80.8	66.3
1983	330,825	937,341	6,886	414,404	0.2	14.8	1.6	83.4	

*Includes C's, cracks and C-processed. C-processed was a nest-run grade which producers met by direct shipments to breakers. Therefore the C-processed component of C-gradings from 1970 to 1974 contained a high proportion of eggs classified as C-processed which were of A quality.

**CEMA sales to breakers were unusually low in 1981 because Que. handled their own surplus removal between September 1981 and January 1982.

***NOTE: Please read cautions contained in text in the interpretation of this table.

Sources: CDA Poultry Market Review, NFPMC Annual Reports, CEMA Annual Reports

The relevant trend shown in Table 17, however, is still valid. In the early 70's breakers processed only about 20 to 30 percent of their requirements from Grade A stock, the remainder was undergrade or C-process (nest-run) stock. By 1980 and 1981, CEMA was supplying about 75 percent of the processing industry's total break. These eggs were all grade A, stained to Grade C. Only 20 to 30 percent of breaker requirements are undergrades. CEMA is now the primary supplier of breaking stock.

II.G. Breaker Agreements with CEMA

II.G.1 Pricing and Subsidization

When CEMA introduced central pricing in mid-1975, a device called the consumer subsidy component was included in the cost-of-production pricing formula for grade A-large eggs. The consumer subsidy extracts from table egg consumers 2.5 cents on every dozen of eggs which is turned over to CEMA. The fund thereby created is used to subsidize a lower price on eggs sold to breakers from CEMA surplus removal. The fund can only support the removal of about 35,000 boxes at the contract commitment price. When surplus removal exceeds that amount and/or the surplus is sold to breakers at below commitment price, the consumer subsidy fund is quickly depleted because producers receive the same price regardless of whether the eggs are sold on the higher-priced table market or the lower-priced breaker market. In such an event the subsidy fund may be augmented by special producer levies collected on each dozen marketed. Producer levies are not passed along to the consumer but rather are borne by producers alone.

It would be difficult to argue that some price discrimination between the two markets is not desirable. For if breakers were required to pay full producer cost for breaking stock from CEMA, they would require a higher selling price for their processed output to cover the higher cost of shell egg inputs. This higher price would tend to

shrink the quantity demanded for processed egg in two ways: processed egg users would attempt to find a lower cost substitute for processed egg in the manufacture of food products (not unlike users of high priced oil are turning to natural gas, coal or solar energy) and secondly, through the importation of the consumer goods which would have used a lower priced U.S. egg product as an ingredient (not unlike the increase in Japanese car imports when North American labor and North American steel became too expensive). The size of the subsidy to breakers and the question of who should finance it are the main issues regarding CEMA's pricing policy to breakers, and ultimately, CEMA's production policy.

II.G.2 The Evolution of Breaker Agreements

Processors' increased dependence upon CEMA as the primary source of breaking stock was accompanied by formal contractual agreements between CEMA and the breakers. Previous agreements between CEMA and the breakers engendered a variety of details, but most agreements have had these common features:

1) The Ontario commitment price to breakers for A large is the base price upon which other provincial prices to breakers were determined. Breakers in B.C., Manitoba and Alberta, for example, buy CEMA surplus at a cost of as much as 2.25 cents a dozen below the base price for breakers in Ontario. The system was designed to allow all Canadian breakers to continue to compete in the Ontario processed egg market.

2) There also exists graduated premiums and discounts in breaker egg prices based on egg size. The magnitude of the price changes are determined by the different yields and solids contained in the various sizes in relation to large size. The prices for other sizes are as follows: for extra large, a 3 cent/dozen premium to

the price for large size; medium, an 8.5 cent/dozen discount; small, a 22 cent/dozen discount. The 1983 and subsequent agreements contain a clause which reviewed the premiums and discounts based on an Argriculture Canada study. Prices in 1984 are set in relation to grade A based on yield and solid differences among the various sizes.

3) The Ontario commitment price for A large was determined by deducting a fixed discount below the Ontario Buyback price. The Ontario Buyback price is the producer price in Ontario plus a 12½ cent a dozen grading fee charged to CEMA. The size of the discount was originally related to maintaining a U.S. competitive price for breaking stock to the extent that these discounts could be funded out of a 2.5 cent a dozen subsidy derived from table market sales. The 1981 Agreement, for example, set the A-large discount at 30 cents a dozen below the Ontario Buyback price.

When certain conditions arose, past agreements could vary the size of the discount from the Ontario Buyback price within the period covered by the Agreement. The 1981 Agreement, for example, provided for the reduction of discounts (the raising of breaker prices) when the 52 week average of supplies within the calendar year purchased by processors exceeded 35,000 boxes per week when a consumer subsidy of 2.5 cents a dozen was in effect. A similar provison was contained in earlier agreements. The clause was intended to halt the drain on the subsidy fund when that fund was near exhaustion, but it had the effect of raising the breaker commitment price in times of high surplus.

A significant departure from previous pricing arrangements arose in 1982. That Agreement linked the breaker price to the U.S. market, but without regard to whether a 2.5 cent/dozen subsidy from the table market could finance such a system. CEMA is required to maintain separate accounts for consumer and producer levies. The consumer account can only be used to subsidize domestic breaker sales. The producer levy may be used for subsidization and transportation of processed egg for export.

II.G.3 The Adversary Relationship Between CEMA and Breakers

CEMA makes contracts with breakers to supply on a weekly basis a given number of boxes (of 15 dozen eggs). Since January 1, 1978, the contract period has been for 60 days (previously, contract periods were for 3 months). The breakers commit themselves to buy an agreed upon volume each week within the specified 60 day period. CEMA supplies the committed volumes, if CEMA has the eggs available. If CEMA does not have sufficient surplus available to meet breaker commitments, available supplies are distributed pro rata commitment levels. The breaker cannot raise or lower his quantity committed in the immediately succeeding contract period by more than 15 percent of the previously committed volume.

Until January 1, 1982, eggs held by CEMA which were surplus to both table and breaker commitment requirements were either exported or placed on bid to Canadian and U.S. breakers. The bid price was always below the commitment price and it led to an adversary strategy between breakers and CEMA: when breakers anticipated shortages, they would raise their commitment levels artificially high, hoping to secure their actually desired quantities as a pro rata distribution of total committed volume. This adversary relationship renders a true assessment of breaker demand impossible to estimate from observed data. In January 1982, the Breaker Agreement was changed, such that eggs bought on bid from CEMA were for export only. The commitment price on other CEMA eggs is to be based on U.S. breaker egg prices.

III DESCRIPTION OF ISSUES

III.A. Table Egg Quality - A Role of the Breaking Industry

One of the functions of the processed egg industry alluded to in an earlier section was to clear undergrades from the table market, thereby improving the quality of eggs for that market. The amount of

undergrades being routed to the breaking trade is lower than in previous years. There is a smaller percentage of undergrades coming through registered stations and many of these go to the higher-priced table market. Can this trend be reversed to improve table market egg quality through a change in breaker policy?

III.B. Pricing Agreement Between CEMA and Breakers

III.B.1 An "Appropriate" Price

Pricing Agreements in the past few years have set forth somewhat arbitrarily determined discounts below the CEMA Buyback price (producer price plus 12½ cents a dozen grading cost) as the price to breakers. The 1982 Pricing Agreement links the price to Canadian breakers to the midwest U.S. nest run egg price so that Canadian breakers can be U.S. cost competitive. Such agreements have not related the breaker price to the cost of producing the eggs for the breaker market other than to acknowledge that the price has always been, to varying degrees, below the full cost of production. Yet, producers receive full cost recovery on all grade A eggs marketed, whether sold to the table market or through the CEMA surplus removal program. From an economic viewpoint, such a pricing system is not in the best interests of producers, breakers or consumers.

A pressing issue is to determine what is a cost-justified "appropriate" price to breakers. Further, will the cost-justified "appropriate" price to breakers allow them to effectively compete against the U.S. market? If it does, it implies that Canadian egg producers can supply the breaker market. If the processed egg industry is unable to compete with the U.S. market with a cost-justified breaker price, this would imply that Canadian producers have priced themselves out of serving this market. Can the Canadian breakers be given an alternative source of breaking stock other than CEMA in order to survive?

III.B. 2 The Question of Subsidization

The current cost of production formula provides approximately a 2.5 cent a dozen consumer subsidy from table market consumers to breaker egg consumers. Should table egg consumers subsidize breaking egg consumers or should the price in each market be based on cost? Any pricing agreement that continues to pay producers full cost for added breaker production yet charges breakers a price below full cost implies somebody has to pay the difference. Subsidization by table egg consumers can be justified on the basis of profit maximizing behavior but not on the basis of full cost of production. (It is a contrivance which approximates price discrimination between the two markets). If subsidization is desired, who should fund it?

III.B.3 "Realistic" Contract Commitments Between CEMA and Breakers

Alluded to in an earlier section was an adversary strategy between CEMA and breakers whereby breakers would lower their commitment levels in times of surplus, hoping to obtain lower-priced eggs from CEMA on bid. They would raise commitment levels in times of shortage, hoping to obtain their true requirements as a pro-rata share of their commitments based on available supplies. This makes a true estimate of demand impossible to estimate from observed data and makes CEMA's production planning more difficult. How can the adversary relationship be avoided?

III.C. CEMA PRODUCTION IMPLICATIONS OF BREAKER PRICING POLICY

Because demand curves are downward-sloping (i.e. the lower the price, the greater the demand), the price to breakers selected as most appropriate affects production. If, upon examination, it is discovered that Canadian egg producers cannot supply Canadian breakers with breaking stock at a price that will allow the industry to survive economically, CEMA would have to consider serving only the table egg

market and adjust production accordingly. Alternatively, if a subsidization scheme were to be continued or expanded, production quota must reflect such a commitment to breakers. There are at least two aspects to the production issue:

III.C.1 Seasonality in Production

Table egg demand is somewhat seasonal, with the peak occurring in the fourth quarter. In a previous section the seasonal aspect of breaker supplies before and after CEMA was reviewed. In pre-CEMA days, breakers generally purchased a lower proportion of their annual supply of breaking stock in the fourth quarter when the table egg demand was strongest. CEMA changed that pattern somewhat but the question still arises as to whether CEMA should gear production to satisfy table requirements for the fourth quarter and provide breakers with the surplus during the first three quarters. Or should CEMA plan production to satisfy both table and breaker requirements in the fourth quarter? The latter course of action would lead to a greater surplus in the first three quarters. (Since layers produce for about 12 months, production cannot be adjusted on a quarterly basis.) A third option would be for CEMA to plan production to satisfy only the table market for the first three quarters and allow imports of table eggs in the peak demand fourth, in which case breakers would be forced to look elsewhere for all supplies.

III.C.2 CEMA's Commitment to the Breaker Industry

The egg processing industry is an important and integral component of the total egg industry. As such, CEMA has responsibilities toward it. Those responsibilities may include offering breakers a stable supply of breaking stock, whether that stable supply meets complete or only partial requirements of the breaking industry. The responsibilities may include policies on pricing and production which would permit or

even encourage the breaking industry the opportunity to expand. Finally, CEMA may have the responsibility to either offer to sell eggs to Canadian breakers at a U.S. competitive price, if there are producers willing to supply breaking stock at such a price, or support processors' attempts to procure breaking stock elsewhere.

IV. ISSUES: SUGGESTED GUIDELINES FOR RESOLUTION

IV.A. Table Egg Quality - A Role of the Breaking Industry?

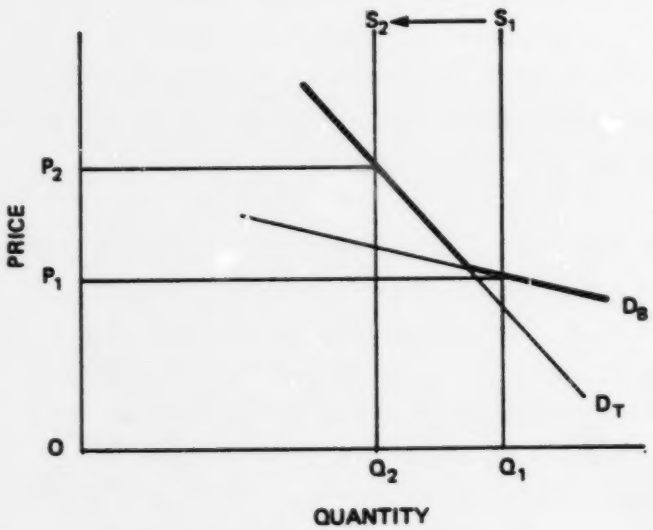
Prior to CEMA's formation, breakers relied heavily on undergrade eggs as their primary source of breaking stock, but now CEMA sales of grade A table egg surplus have become the primary source to the industry. This is partially attributable to the decrease in the supply of undergrades over time.

The reasons for the decrease in the past 10 years is varied. To some extent it is because handling and grading equipment and management have improved so that as a proportion of total eggs, the amount of grade A's has risen. But another reason is the supply management system itself, which at times encourages grading stations to compete for ungraded production by offering producers a somewhat higher-than-actual grade-out (i.e., producers receive payment for a higher proportion of grade A's than actually exist).

Another reason for the breaking industry's greater reliance on CEMA is the diversion of undergrade eggs away from the breaking trade as a result of institutional policy. Grade B and (in most provinces) cracks may be sold to the table market. The prices of B's and cracks now are more frequently determined by the price of grade A in the table market, rather than by breaker demand because the supply of undergrades is so small and the price of grade A is never allowed to fall to a price at which breakers could effectively bid the B's and cracks away from the table market.

CHART 1

THE EFFECT OF TABLE EGG DEMAND ON BREAKER EGG PRICE



Diagrammatically, this is shown above. As the supply of undergrades shifts over time from S1Q1 to S2Q2 the price is determined no longer by the breaker demand for undergrades (D_B) at P1 but by the demand for undergrade table eggs (DT), at P2. In actual fact the reduction in supply of undergrades has probably been in large part a function of reduced total egg production and a cost of production pricing system which ensures that the value of undergrade eggs is always higher in the table market than in the breaker market.

There appears little that can be done to reverse the trend of fewer undergrades being routed to the breaking trade. One possibility would be to legislate all undergrades to the breaking trade. This requires provincial cooperation and indeed some provinces presently do not allow the marketing of cracks to the table trade. However, some consumers would resent the elimination of a lower-priced option to buying grade A table eggs.

A second possibility would be to raise the price of grade A eggs sold to breakers to a level that would motivate breakers to seek undergrades as their least expensive source of breaking stock. This seems impractical as it would create an environment of assured contraction in the breaking industry unless accompanied by the opportunity to procure breaking stock from other sources as well - such as imports or domestic ungraded product. But from a practical viewpoint, the amount of undergrades has become so small over time that changing the system only to assure the restoration of the table egg quality function to the breaking industry seems unwise.

IV.B. Pricing and Subsidization

IV.B.1 Breaker Egg Price Determination

It is possible for a system to be changed in such a way that there are new winners and no new losers. For example, producers may recognize that costly overproduction should be avoided and hence support breaker applications to seek breaking stock elsewhere, thereby relieving table egg consumers of a breaker subsidy. Indeed, the resolution of some of these issues may involve exploring these possibilities.

If CEMA were a profit maximizer on behalf of producers, the prices in the two separate breaker and table markets would be set according to the standard economic theory of price discrimination with the table egg price set quite a bit higher than that in the breaker market.

The conditions required for effective price discrimination are met in the egg industry: two different demand curves exist, with the breaker market, by virtue of its ability to store product, the more price elastic (responsive to changes in price). The two markets are easily kept separate by staining the eggs destined for the breaker market. The only institutional consideration which would prevent CEMA from profit maximizing under complete price discrimination is that the consumer subsidy is limited to about 2.5 cents a dozen. The limit on the subsidy prevents a profit maximizing price in the table market from being achieved. Instead, the price in that market is tied to the cost of production. Formula pricing is a constraint to achieving complete profit maximizing price discrimination but a variable consumer subsidy would allow the effective abandonment of cost of production pricing in the table market in favor of profit maximization through approximately complete price discrimination if it were so desired.

Such pricing restrictions on CEMA with regard to the table market do not apply to the breaker market. The breaker price is not tied to a full cost of production price. If CEMA wanted to be a profit-maximizer in the breaker market, price would be set at that point where the profit-maximizing quantity intersects the breaker demand curve. The profit-maximizing quantity is where the marginal cost of supplying breaker eggs is equal to the marginal revenue (change in total revenue as a result of supplying those breaking eggs).

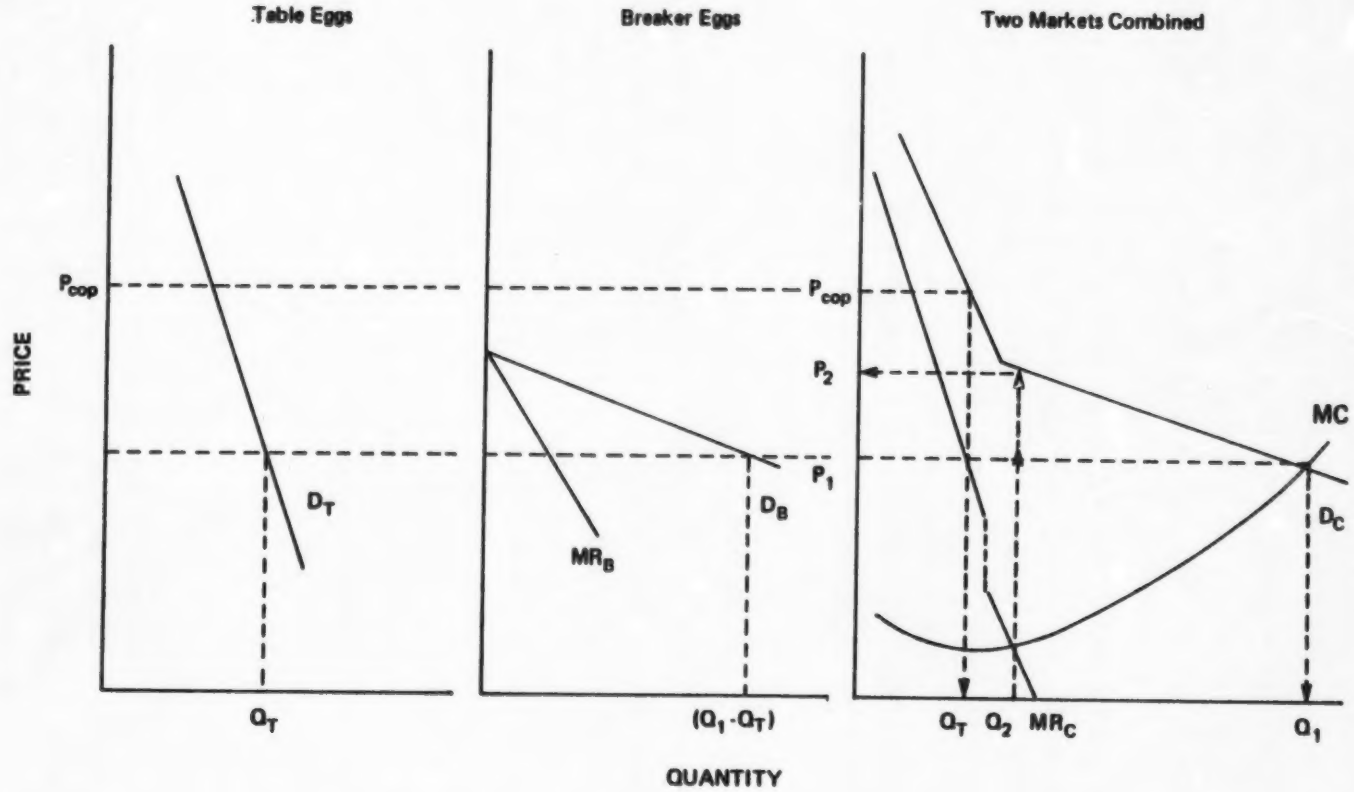
Alternatively, if CEMA were to follow a pricing policy which would maximize social benefit, production would be somewhat higher. In this case, breaker price would be set at that point where the marginal cost of supplying breaker eggs is equal to demand. This can be depicted diagrammatically.

Under constrained profit maximizing behavior, CEMA would charge Pcop in the table market (the institutional maximum equal to cost of production price) and in the breaker market would set price at P2 and total quantity would equal Q2. The amount of eggs sold to the breaker market would be Q_2-Q_T, the amount sold in the table market, Q_T.

Under the policy which would maximize social benefit, Q1 would be produced, and the price to breakers would be P_1. The amount going to the breakers would be Q1-QT. One of the problems that arises here, however, is that if CEMA targeted for this goal and overestimated table egg demand, supplies to breakers would be beyond socially desirable levels and would result in a lower breaker price than intended and thus a loss to producers. The more desirable quantity to be produced, therefore, would be between the profit maximizing level and the socially optimal level, i.e. between Q2 and Q1.

CHART 2

PRICE AND QUANTITY DETERMINATION WITH MARKET DISCRIMINATION



Towards practical application, the determination of the profit-maximizing price and quantity requires the estimation of table egg demand, breaker egg demand, the marginal revenue curve of each, and the marginal cost of supplying eggs to breakers.

Estimation of table egg demand may be done in a number of ways, for example by regression or by simply eyeballing a graph of price-quantity observations. (Since the supply schedule for eggs has shifted more than the fairly stable demand schedule, the graph of equilibrium points between supply and demand would tend to identify a demand curve). Table egg price is already predetermined by the cost of production formula. The marginal revenue curve, required for profit maximization can only be obtained by estimating a demand schedule through regression. But since profit-maximization in the table market is institutionally out-of-bounds, the marginal revenue schedule need not be estimated. It will suffice to say that fair approximations of table market quantity and price are the 1981 table egg consumption and the cost of production table egg price, respectively.

The breaker demand in Canada cannot be estimated by regression because the demand is not observable. It is not observable because breakers purchase some of their supplies at commitment prices, some on bid from CEMA, and some through private arrangements for undergrades. It is therefore not possible to historically relate a specific breaker price to quantity demanded. This presents a difficulty in determining the marginal revenue schedule, and hence the profit-maximizing quantity.

There are, however, a few things that are known or can be known about the breaker demand. By virtue of processed egg storability, the demand for breaker eggs is more price elastic than the table egg market, i.e. more responsive to changes or expected changes in price. Secondly, if the marginal cost of supplying breaker eggs is known, a point on the breaker demand curve can be determined by asking breakers to identify their commitment level at a price equal to marginal cost.

In order for this method to be effective, however, the contract commitment period must be sufficiently long to prevent breakers from engaging in the adversary strategy that characterizes the present system.

A contract commitment period equal in length to the laying cycle, i.e. 12 months may not be unreasonable. The total quantity of eggs demanded would equal the table egg requirement plus the social-benefit maximizing quantity in the breaker market identified by the aforementioned method. (In the previous diagram Q1 = QT +(Q1-QT).) In order to meet the intended goal of producing a quantity between Q2 and Q1 (the profit-maximizing output and the social benefit maximizing output) CEMA may consider importing a portion of the identified breaker commitment.

Such a system would allow breakers the opportunity to have access to a stable supply year-round if they are willing to pay the price. The breaker price would be set equal to the marginal cost of supplying those eggs to breakers. This cost-recovery pricing system is based on no consumer subsidy. The current procedure of paying producers a uniform price for eggs, regardless of whether they go to the table or breaker markets, at the time of delivery to a grading station could be maintained. The difference in table and breaker prices to producers could be paid out of a producer levy fund which on a national basis on all eggs would essentially pay producers one price for eggs sold to the table market and a lower price for eggs sold to the breaker market.

The question arises as to what the marginal cost of supplying eggs to breakers is. What is the price at which producers from an economic viewpoint should be willing to supply breakers' identified requirements? An approximation of the marginal cost would be:

MC = (Feed + Chick + CEMA) * [1+(r) * (time/52)]
Where MC = marginal cost per dozen of supplying eggs to breakers
Feed = feed cost per dozen eggs
Chick = pullet cost per dozen eggs
CEMA = CEMA cost of grading surplus eggs

r = long term annual interest rate
time = the number of weeks a producer's money is tied up before receiving payment for a dozen eggs

The factor 1+(r) is a measure of the opportunity cost foregone by the producer of putting his money into feed, chick and CEMA grading (i.e. producing for the breaker market) as opposed to some other investment, for example, Canada Savings Bonds. (It is assumed that labor cost <u>at the margin</u> would be negligible.)

A recent ball-park estimate of this marginal cost can be obtained from the January 6, 1982 cost of production summary sheet. Using Manitoba prices Feed = 39.3 cents/doz, Chick = 15.4 cents, CEMA grading fee = 11.0 cents. Assuming 18 percent long-term annual interest rate, an average 3-week period between the cash outlay for expenses and receipt of payment for a dozen eggs, and a 40 percent tax rate (at the margin), the formula for determining the marginal cost of supplying breaker eggs yields MC = (39.3 + 15.4 + 11.0) * [1 + (.18)*(3/52) = 73.2 cents/doz. According to the discussion above, this would represent an estimate of the cost-justified appropriate price to breakers.

The related pricing issue is whether this cost-justified price to breakers allows them to effectively compete against the U.S. Ultimately, there are two pricing policies and they are probably not compatible. Either the price to Canadian breakers can be set according to the U.S. price, in which case some subsidization may be required, or the price to breakers is based upon the marginal cost of supplying the breaker industry, in which case Canadian breakers at most times cannot compete internationally. If the supply management system functions as it should, there will, however, be times when the U.S. market will be at cyclical price peaks. At these times Canadian breakers will be able to effectively compete in international markets even if breaker prices are set according to Canadian marginal cost.

If subsidization is rejected as a method of assuring cost-competitiveness with the U.S. and marginal cost pricing is also found to be too high for cost competitiveness, there is another option that may be considered. That is the possibility of allowing breakers to contract supplies other than from CEMA. Possible sources would be unrestricted imports, or through domestically sourced processed-egg quota based on bids. The latter system would allow CEMA to gear production only to the table market but would also permit allocation of processed-egg quota to the Canadian producers willing to provide such eggs at the lowest cost. This option would be consistent with the allocation of production, at least for breaker requirements, based on competitive advantage. It would allow Canadian producers who would be willing to supply breaker requirements at a price lower than the national average marginal cost to do so. This is the preferred option.

IV.B.2 Subsidization

The current consumer subsidy component of the cost-of-production formula essentially is an extraction from table egg consumers beyond full cost of production, in order to subsidize the breaker market which does not at present pay full cost. The necessity for subsidization stems from the practice of paying producers the same price for eggs whether they are marketed on the table market or on the lower-priced breaker market. This system is in sharp contrast to the Wheat Board which pays producers only according to what it is able to realize on sales.

Under the 1982 Breaker Agreement which provides for pricing according to a U.S. competitive price, the degree of subsidization could become extensive. If the current system of permitting breaker subsidization by table egg consumers is continued it is suggested that the size of the subsidy should be strictly limited. If table egg pricing is to be based on cost of production alone, without a breaker subsidization add-on, breaker subsidization must be funded from a producer levy.

which would essentially pay producers less than full cost on the eggs diverted to the breaker market. Again, it is in producers best economic interest to produce for the breaker market (rather than forego supplying that market) if, and only if, they can receive a marginal cost price.

IV.B.3. Contract Commitments

In the discussion on appropriate pricing, it was shown that an appropriate cost-recovery price is the marginal cost of supplying breaker eggs. To determine the quantities which are to be sold at that price, CEMA must obtain commitments from breakers for a specified quantity throughout the production cycle. A lengthening of the contract commitment period from 60 days to approximately 12 months would lessen the amount of strategic "false-signal" commitments based on expectations of production shortages and benefits. No doubt breakers will be faced with greater market uncertainty but it may be better for breakers to make use of hedging opportunities on the futures markets than to force CEMA to find export outlets on short notice. By lengthening the contract period, a more realistic commitment quantity can be planned for by CEMA.

IV.C. Production Implications of Breaker Pricing Policy

IV.C.1 Production Implications - Seasonality

If CEMA were to pursue a profit-maximizing strategy in the breaker market, the question of whether to gear production to meet peak demand fourth quarter table requirements or to meet both table and breaker requirements becomes quite involved. Not only is a marginal revenue schedule for breakers required, but consideration must be given to a changing marginal revenue schedule over the length of the laying cycle. The production surplus to table requirements for three

quarters may be sold in the lower priced breaker market whereas it could be sold in the higher priced table market in the fourth quarter. Marginal revenue and marginal cost would have to be averaged over the four quarters to determine the profit-maximizing quantities.

But the seasonal question does not require an estimate of marginal revenues under the proposed resolution of allowing breakers to commit to a certain quantity level at a given marginal cost, as the proposed resolution is not a profit-maximizing strategy. There is still a seasonal aspect, however, in that CEMA would gear production for table requirements plus committed breaker requirements for the first three quarters. If CEMA were to make a 4 quarter commitment to breakers and the Agency sought to meet the breaker commitment the Agency would be forced to import during the fourth quarter since the peak in table demand at that time would prevent sufficient surpluses from being declared to meet breaker requirements. Whether CEMA would prefer to do the importing or would prefer to make a 3 calendar quarter commitment to breakers and allow them to do the importing in the fourth quarter is a matter for negotiation. For the purpose of this study it will suffice to say that CEMA should plan production to meet table and breaker commitments for the first 3 quarters, otherwise a higher level of planned production would be required to meet fourth quarter commitments, implying excessive production in the first three quarters.

IV.C.2. CEMA's Commitment to the Breaker Industry

It is suggested that CEMA's responsibilities toward the breaking industry include exploring alternatives to provide the opportunity to breakers of contracting a portion, or all of their requirements from Canadian sources, at a price that allows marginal cost recovery for producers. Alternatives suggested include national marginal cost pricing or private contracting between breakers and producer bidders for breaker quota. If either of those methods imply a price which turns out to be too high for Canadian breakers to be competitive,

Canadian egg producers should be prepared to support the breaking industry's attempts to secure breaking stock through imports. It is of vital interest to the total egg industry to have an operative surplus removal function in the form of a healthy breaking industry. A healthy breaking industry implies the ability to expand through the opportunity to procure cost competitive supplies, domestically or internationally.

V. SUMMARY AND CONCLUSIONS

The egg processing industry has expanded significantly in the past 15 years, a period when total egg consumption was generally falling. In the years before CEMA, the processing industry procured up to 75 percent of its requirements from undergrade or ungraded eggs, 25 percent from grade A. Through time, the percentage of undergrades through registered stations has decreased appreciably. Many of the grade B and cracks are sold to the table market and CEMA has become the primary supplier of surplus grade A eggs used for breaking. CEMA now provides about 75 percent of the breaking industry's requirements. As a result, CEMA's policies toward breakers regarding pricing and production become important in determining the growth or contraction of the processed egg industry.

The 1983 pricing agreement is based on selling surplus grade A table eggs to breakers at a price that is competitive with the U.S. processed egg industry. Such a price is generally quite a bit below the producer's cost as determined by the CEMA cost of production pricing formula. Yet producers are paid the full cost of production on all eggs marketed whether they are sold in the table market or the lower-priced breaker market. The shortfall in receipts between what is paid to producers and what is received from breakers is presently funded through a cost of production formula add-on called the consumer subsidy. At the time of this writing, the consumer subsidy is no longer limited to 2.5 cents a dozen on all eggs sold to the table market.

Evidence such as the proportion of all eggs processed in the U.S. and the ability of Canadian breakers to import liquid for drying suggests that the Canadian processed egg industry is likely to continue to expand, given a favorable breaking stock price.

This expansion, in combination with a U.S. competitive price on shell egg breaking stock to Canadian breakers and a continuation of the practice of paying full cost on all eggs to producers, implies that the fund required to subsidize the lower price to breakers must expand, probably appreciably. To impose this subsidization on table egg consumers through a larger consumer subsidy component is one method of allowing CEMA to engage in profit-maximizing price discrimination in the two distinct markets. It would, however, be an effective abandonment of cost-of-production pricing.

An alternative to increased consumer subsidization of the breaking industry would be to set the CEMA price to breakers at the nationally determined marginal cost of supplying breaking eggs. That cost, MC, would equal feed plus chick plus CEMA grading cost adjusted for opportunity cost foregone. An estimate calculated as of January 6, 1982 suggests that price would be about 73 cents a dozen.

The quantity produced at such a price under a profit maximization criterion would be the quantity where MC of production intersected marginal revenue on a typical supply-demand graph combining the two markets. The social-benefit maximizing quantity would be to produce where MC intersected the summation of table plus breaker demand schedule. The latter may be determined by adding to table demand the quantities breakers are willing to contract for, over the course of the laying cycle. In order that producers and the breaking industry share in such an endeavor, it is proposed that CEMA gear production for table requirements at full cost plus breaker requirements at

marginal cost. It could generally be expected that CEMA would be able to provide breakers with their contracted quantities for the first three quarters of the year.

During the fourth quarter, table demand peaks, requiring a supply adjustment to satisfy both the table and breaker demand. Since three months is not sufficient to make such an adjustment, either CEMA or breakers would be required to contract fourth quarter breaker supplies through imports. By enabling the incremental production, represented by breaker commitments, to be sold to the table market in the fourth quarter, Canadian egg producers would be maximizing their production opportunities over the laying cycle. Producers would not earn as much on the production sold to breakers, but it would still be in producers' economic interest to produce for that market rather than forego supplying that market.

Another alternative to inviting breaker commitments at nationally determined marginal cost is for CEMA to gear production for the table egg market and allow breakers to contract privately with Canadian producers for ungraded (nest-run) production at whatever price they can. Such a price would undoubtedly be lower than the national average marginal cost. It would tend to allocate breaker quota in accordance with the principle of competitive advantage, would tend to keep a greater production base in Canada and would allow breakers the opportunity to contract at a lower price, though admittedly, this proposal may cause some monitoring problems. It is possible, however, to keep the markets identifiably separate by using brown egg layers for eggs destined for processing.

Ultimately, CEMA benefits considerably by having a viable breaking industry available as a ready market for surplus table production. By offering breakers the opportunity to contract a stable supply of eggs at a cost-justified price, CEMA is meeting its responsibility to the

breaking industry. But that responsibility also includes the obligation to relinquish the production used to serve that market if the breaking industry is not able to compete effectively with the U.S. breaking industry. To the extent that the Canadian breaking industry avails itself to the stable supply offer at a marginal cost-recovery price, Canadian egg producers have every opportunity to supply that market. But if Canadian breakers are not able to be price competitive with the U.S. breaking indsutry, and a consumer subsidy is not provided, the implication is that Canadian egg producers have priced themselves out of serving the breaker market. In that case, CEMA has the responsibility of supporting the breakers' applications to procure any or all of their requirements through imports.